In the claims:

Please amend the claims as follows:

1. (Currently Amended) A method for identifying, delineating, and measuring structures in an image, the method comprising:

(a) receiving image data representing the image;

(b) statistically identifying types of structures in the image by applying a maximum likelihood classifier to the image data, the maximum likelihood classifier being a classifier which globally maximizes a discriminant function;

(c) forming a statistical description of a structure of interest in the image in accordance with the types of structures identified in step (b) and an examplar input which comprises an identification of a seed or an examplar region in the image;

(d) forming a morphological description of the structure of interest in accordance with the statistical description formed in step (c) and the examplar input; and

(e) forming a structural identification of the structure of interest in accordance with the morphological description formed in step (d) and the examplar input.

2. (Original) The method of claim 1, wherein, in step (b), the maximum likelihood classifier comprises a discriminant function.

3. (Original) The method of claim 2, wherein step (b) comprises selecting the discriminant function in accordance with an availability of *a priori* probabilities.

4. (Original) The method of claim 3, wherein step (b) further comprises selecting the discriminant function in accordance with an expectation of whether the types of structures to be statistically identified will have different covariance matrices.

5. (Original) The method of claim 1, wherein the examplar input is derived from a co-registered anatomical atlas.

6. (Original) The method of claim 1, wherein the exemplar input is derived from an input manually made by a user.

7. (Original) The method of claim 6, wherein the input manually made by the user comprises a mouse click.

8. (Original) The method of claim 7, wherein the exemplar region is derived from the mouse click using region identification.

9. (Original) The method of claim 8, wherein the region identification uses the maximum likelihood classifier.

10. (Original) The method of claim 1, further comprising (f) receiving a verification of an accuracy of structural identification formed in step (e).

11. (Original) The method of claim 10, wherein, if it is determined in step (f) that the accuracy is inadequate, steps (c), (d), (e) and (f) are repeated until it is determined in step (f) that the accuracy is adequate.

12. (Original) The method of claim 1, wherein the data received in step (a) comprise data of a plurality of images.

13. (Original) The method of claim 12, wherein step (e) is performed on an image-by-image basis for the plurality of images.

14. (Original) The method of claim 13, wherein step (e) comprises:

forming the structural identification for one of the images; and

using the structural identification formed for said one of the images to seed the structural identification in remaining ones of the images.

15. (Original) The method of claim 14, wherein step (e) further comprises determining whether each of the remaining ones of the images comprises a bifurcation point of the structure of interest.

16. (Original) The method of claim 15, wherein the image is a medical image, and wherein the structures comprise tissues.

17. (Original) The method of claim 16, wherein the image is an MRI image.

18. (Currently Amended) A system identifying, delineating, and measuring structures in an image, the system comprising:

an input device for receiving image data representing the image; and

a processor, in communication with the input device, for:

(a) receiving the image data from the input device;

(b) statistically identifying types of structures in the image by applying a maximum likelihood classifier to the image data, the maximum likelihood classifier being a classifier which globally maximizes a discriminant function;

(c) forming a statistical description of a structure of interest in the image in accordance with the types of structures identified in step (b) and an examplar input;

(d) forming a morphological description of the structure of interest in accordance with the statistical description formed in step (c) and the examplar input which comprises an identification of a seed or an examplar region in the image; and

(e) forming a structural identification of the structure of interest in accordance with the morphological description formed in step (d) and the examplar input.

19. (Original) The system of claim 18, wherein, in step (b), the maximum likelihood classifier comprises a discriminant function.

20. (Original) The system of claim 19, wherein the processor performs step (b) by selecting the discriminant function in accordance with an availability of *a priori* probabilities.

21. (Original) The system of claim 20, wherein step (b) further comprises selecting the discriminant function in accordance with an expectation of whether the types of structures to be statistically identified will have different covariance matrices.

22. (Original) The system of claim 18, wherein the processor derives the examplar input from a co-registered anatomical atlas.

23. (Original) The system of claim 18, wherein the processor derives the exemplar input from an input manually made by a user through the input device.

24. (Original) The system of claim 23, wherein the input device comprises a mouse, and wherein the input manually made by the user comprises a mouse click.

25. (Original) The system of claim 24, wherein the processor derives the exemplar region from the mouse click using region identification.

26. (Original) The system of claim 25, wherein the region identification uses the maximum likelihood classifier.

27. (Original) The system of claim 18, wherein the processor further (f) receives a verification of an accuracy of structural identification formed in step (e).

28. (Original) The system of claim 27, wherein, if it is determined in step (f) that the accuracy is inadequate, the processor repeats steps (c), (d), (e) and (f) until it is determined in step (f) that the accuracy is adequate.

29. (Original) The system of claim 18, wherein the data received by the input device comprise data of a plurality of images, and wherein the processor performs step (e) on an image-by-image basis for the plurality of images.

30. (Original) The system of claim 29, wherein the processor performs step (e) by:

forming the structural identification for one of the images; and

using the structural identification formed for said one of the images to seed the structural identification in remaining ones of the images.

31. (Original) The system of claim 30, wherein the processor performs step (e) further by determining whether each of the remaining ones of the images comprises a bifurcation point of the structure of interest.

INTERVIEW SUMMARY BY APPLICANT

At the outset, the Applicant acknowledges with appreciation the courtesy extended by the Examiner during the telephone interview conducted November 1, 2006. During the interview, the Applicant's representative presented the following arguments for patentability. The classifier used in the primary reference is not a maximum likelihood classifier. The applied reference does not form a statistical description in accordance with the types of structures identified and an exemplar input. While the reference does use training images, those are used to form an eigenvector classifier.

In response, the Examiner argued that the maximum likelihood classifier recited in the claims could cover the eigenvector classifier of *Young et al.* She indicated that the rejection might be overcome if the Applicant added claim language more fully describing the maximum likelihood classifier, although she also indicated that maximum likelihood classifiers are known in the art. With regard to the exemplar input, the Examiner said that an exemplar input as broadly recited in the claims would include the training images of *Young et al,* although, again, she indicated that the rejection might be overcome if the Applicant added claim language stating what the exemplar input is and how it differs from training images.